CLAIMS

1. A phosphonium compound embedded in a matrix substrate wherein the phosphonium compound is selected from a group consisting of tris (hydroxyorgano) phosphine (THP), a THP^+ salt (tetrakis (hydroxyorgano) phosphonium salt) or a condensate of THP and a nitrogen containing compound.

2. A phosphonium compound as claimed in claim 1, in which the THP^+ salt is tetrakis (hydroxymethyl) phosphonium sulphate.

3. A phosphonium compound as claimed in claim 1, in which the THP salt is selected from the group consisting of tetrakis (hydroxymethyl) phosphonium chloride, tetrakis (hydroxymethyl) phosphonium phosphate, tetrakis (hydroxymethyl) phosphonium formate, tetrakis (hydroxymethyl) phosphonium acetate and tetrakis (hydroxymethyl) phosphonium oxalate.

4. A phosphonium compound as claimed in any preceding claim, in which the nitrogen containing compound is urea.

5. A phosphonium compound as claimed in any one of claims 1 to 3, in which the nitrogen containing compound is melamine, guanidine or dicyandiamide.

6. A phosphonium compound as claimed in anyone of the preceding claims, in which the matrix substrate has a melting point of between 5 to 80° C.

7. A phosphonium compound as claimed in claim 6, in which the matrix substrate has a melting point of between 20 to 70° C.

8. A phosphonium compound as claimed in claim 7, in which the matrix substrate has a melting point of 60° C.

9. A phosphonium compound as claimed in anyone of the preceding claims, in which the matrix substrate is soluble in water at a temperature of between 5 to 100° C.

10. A phosphonium compound as claimed in claim 9, in which the matrix substrate is soluble in water at a temperature of 20° C.

11. A phosphonium compound as claimed in anyone of the preceding claims in which the matrix substrate is selected from a polyhydric compound.

12. A phosphonium compound as claimed in claim 11, in which the polyhydric compound is a polyethylene glycol with a molecular weight of above 600.

13. A phosphonium compound as claimed in claim 11, in which the polyhydric compound is polyethylene glycol 8000.

14. A phosphonium compound as claimed in anyone of claims 1 to 10 in which the matrix substrate is selected from a group consisting of ethoxylated surfactants, fatty alcohols, ethoxylated fatty alcohols, ethoxylated alkyl phenols, ethoxylated fatty acids, fatty acid alkanolamides, ethylene oxide/propylene oxide block copolymers, ethoxylated/propoxylated fatty alcohols, polyethylene glycol esters, glycol esters, alkyl benzene sulphonic acids and salts thereof.

15. A phosphonium compound as claimed in any one of the preceding claims, wherein the matrix substrate is a mixture of two or more of the polyhydric compound defined in any one of claims 12 to 14.

16. The use of a phosphonium compound as defined in claims 1 to 15.

17. The use of a phosphonium compound as claimed in any one of claims 1 to 15 to reduce the numbers of micro-organisms in industrial systems.

18. The use of phosphonium compound as claimed in claim 17 in which the industrial system is selected from the group consisting of storage vessels for water and fuel; fuel and gas pipelines; gas lift wells; water injection systems; oil or gas production wells; cooling tower aqueous systems; aqueous systems in paper reduction and the like and any other aqueous systems where micro-organism contamination is a problem.

19. The use of phosphonium compound as claimed in claim 17 or claim 18, in which the micro-organism is selected from the group consisting of sulphate reducing bacteria, general heterotrophic bacteria and algae.

20. The use of phosphonium compound as claimed in any one of claims 1 to 15 to reduce iron carbonate or iron, lead and zinc scale deposits.

21. A method for reducing the numbers of micro-organisms in an industrial system which method comprises a step of contacting the industrial system with an effective amount of phosphonium compound as defined in anyone of claims 1 to 15 to reduce the number of micro-organisms.

22. A method for reducing the amount of scale in an industrial system which method comprises the step of contacting the industrial system with an effective amount of a phosphonium compound defined in anyone of claims 1 to 15 to reduce the amount of scale.

23. A phosphonium compound as claimed in any one of claims 1 to 15, in which said compound is formulated with one or more of the following: scale inhibitors, corrosion inhibitors, additional biocides, demulsifiers, gas hydrate inhibitors, asphaltene inhibitors/dispersants, other surfactants, anti-foams/defoamers, fragrances, wax inhibitors, scale dissolvers, gelling agents, oxygen scavengers.

24. A phosphonium compound as claimed in any one of claims 1 to 15, in which said compound is in the form of sticks/candles, beads, pellets, bricks, shavings, flakes or prills.

25. A phosphonium compound substantially as described herein with reference to the examples.

26. The use of a phosphonium compound substantially as described herein.

27. A method for reducing the numbers of micro-organisms in an industrial system substantially as described herein.

28. A method for reducing the amount of scale in an industrial system substantially described herein.